Experiment # 1

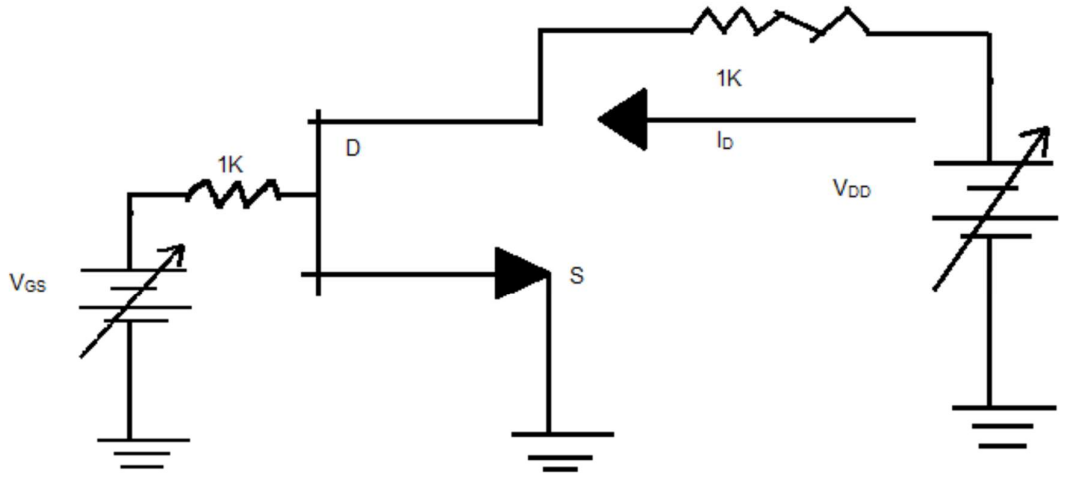
JFET Characterization
The objective of this lab is to investigate the characteristics of JFET. Both the output and trans-conductance characteristics curve will be investigated.

Component Required:
JFET (n Channel), Resistors 1K- 2nos

Facilities Required:
Breadboard, Variable Power Supply, Multimeter

Procedure:

Measuring ID versus VDS (o/p characteristics)



1. Build the circuit as in fig.

2. Obtain the output characteristics i.e. I_D Vs V_{DS}.

3. Set the particular value of voltage for V_{GS}. Vary V_{DD} from 0 to 16 V with step of 0.5 V and measure corresponding I_D.

4. Repeat the procedure for different values of V_{GS} (0V, -.5V. -1V, -1.5V, -2V, -3V)

5. Plot the graph I_D vs. V_{DS}.

6. Find out output resistance and on resistance.

Transconductance characteristics

The transfer characteristic for a JFET can be determined experimentally, keeping drain-source voltage, V_{DS} constant and determining drain current, I_D for various values of gate-source voltage, V_{GS}. (Remove Resistance between Supply and drain).

7. From the fig obtain the Transconductance characteristics, i.e. I_D vs. V_{GS}

8. Set particular voltage V_{DD} i.e. 5V start with a gate voltage V_{GS} of 0 and measure the corresponding drain current I_D. The decrease V_{GS} in step of .25V until V_{GS} is -3V at each step record the drain current.

9. Plot the graph I_D vs. V_{DS}.

10. Calculate the Trans conductance parameter from graph